

**PERMIT TO OPERATE  
(2 Stack Version)**

This permit supersedes/replaces your permit dated June 1, 2007

In compliance with the Federal Clean Air Act and the Commonwealth of Virginia Regulations for the Control and Abatement of Air Pollution,

Mirant Potomac River LLC  
8301 Professional Place  
Suite 230  
Landover, MD 20785

Registration No.: 70228

is authorized to modify and operate

located at an electricity generating facility

1400 North Royal Street  
Alexandria, VA 22314

in accordance with the Conditions of this permit.

Approved on [DRAFT](#).

Director, Department of Environmental Quality

Permit consists of 24 pages.  
Permit Conditions 1 to 48.  
Appendix A

## **INTRODUCTION**

This permit approval is based on the results of air dispersion modeling conducted using a protocol approved by the Department of Environmental Quality (DEQ) to ensure that the Mirant Potomac River Generating Station (PRGS) does not contribute to a modeled exceedance of the National Ambient Air Quality Standards (NAAQS). Any changes to an existing facility which alter the impact of the facility on air quality may require a permit. Failure to obtain such a permit prior to construction may result in enforcement action. In addition, this facility may be subject to additional applicable requirements not listed in this permit.

Words or terms used in this permit shall have meanings as provided in 9 VAC 5-10-20, and 9 VAC 5-80-810 of the State Air Pollution Control Board's (Board) Regulations for the Control and Abatement of Air Pollution (Regulations). The regulatory reference or authority for each condition is listed in parentheses () after each condition.

Annual requirements to fulfill legal obligations to maintain current stationary source emissions data will necessitate a prompt response by the permittee to requests by the Department of Environmental Quality (DEQ) or the Board for information to include, as appropriate: process and production data; changes in control equipment; and operating schedules. Such requests for information from the DEQ will either be in writing or by personal contact.

The availability of information submitted to the DEQ or the Board will be governed by applicable provisions of the Freedom of Information Act, §§ 2.2-3700 through 2.2-3714 of the Code of Virginia, § 10.1-1314 (addressing information provided to the Board) of the Code of Virginia, and 9 VAC 5-170-60 of the State Air Pollution Control Board Regulations. Information provided to federal officials is subject to appropriate federal law and regulations governing confidentiality of such information.

## **PROCESS REQUIREMENTS**

1. **Equipment List** - Equipment at this facility consists of the following:

<b>Equipment to be modified</b>			
<b>Reference No.</b>	<b>Equipment Description</b>	<b>Maximum Rated Capacity</b>	<b>Manufactured Date</b>
C1 Cycling Unit	Combustion Engineering, natural circulation, tangentially coal-fired with superheater and economizer with low NOx burners.	1053 MMBtu/hr	1949
C2 Cycling Unit	Combustion Engineering, natural circulation, tangentially coal-fired with superheater and economizer with low NOx burners.	1029 MMBtu/hr	1950
C3 Base Unit	Combustion Engineering, controlled circulation, tangentially coal-fired with superheater, single air reheater and economizer with low NOx burners and over fired air.	1018 MMBtu/hr	1954
C4 Base Unit	Combustion Engineering, controlled circulation, tangentially coal-fired with superheater, single air reheater and	1087 MMBtu/hr	1956

	economizer with low NO <sub>x</sub> burners and over fired air.		
C5 Base Unit	Combustion Engineering, controlled <del>natural</del> circulation, tangentially coal-fired with superheater, single air reheater and economizer with low NO <sub>x</sub> burners and over fired air.	1107 MMBtu/hr	1957
Reference No.	Equipment Description	Maximum Rated Capacity	Manufactured Date
Ash Silos	Two (2) fly ash silos and one (1) bottom ash silo	480 tons per day	n/a
Ash Loader	Fly ash and bottom ash truck loading from silos and ash truck roadway dust	880 tons per day	n/a
Coal Handling	Coal pile wind erosion, coal stackout conveyor system, coal railcar dumper	711,836 tons per year	n/a
Sodium sesquacarbonate Handling	Pneumatic upload system, full enclosure	n/a	n/a

Specifications included in the permit under this Condition are for informational purposes only and do not form enforceable terms or conditions of the permit.

(9 VAC 80-830)

2. **Stack Configuration** – The exhaust effluent from boilers C1 and C2 will pass through existing C1 stack to provide credit as a common exhaust stack which shall be identified as ‘Stack 1’. The exhaust effluent from boilers C3, C4, and C5 shall pass through boiler C4’s reconfigured stack to provide credit as common exhaust stack which shall be identified as ‘Stack 2’. The flow from C1 and C2 shall be connected in such as to allow for flow to the new ‘Stack 2’. Flow from C3, C4 and C5 shall be prohibited to flow to ‘Stack 1.’ The existing stacks from boilers C2, C3, and C5 shall be retired in place. Resumption of operation of the existing stacks from boilers C2, C3, and C5 may require a permit.  
(9 VAC 5-80-850)
3. **Nitrogen Oxides (NO<sub>x</sub>) Emission Controls** - NO<sub>x</sub> emissions from boilers C1 and C2 shall be controlled by the use of low NO<sub>x</sub> burners. The low NO<sub>x</sub> burners shall be provided with adequate access for inspection and shall be in operation when the boilers are operating.  
(9 VAC 5-80-850)
4. **Nitrogen Oxides (NO<sub>x</sub>) Emission Controls** - NO<sub>x</sub> emissions from boilers C3, C4, and C5 shall be controlled by the use of low NO<sub>x</sub> burners and separated over-fire air (SOFA). The low NO<sub>x</sub> burners and SOFA systems shall be provided with adequate access for inspection and shall be in operation when the boilers are operating.  
(9 VAC 5-80-850)
5. **Sulfur Dioxide (SO<sub>2</sub>) and Acid Gas Emission Controls** – SO<sub>2</sub> emissions from boilers Stack 1 and Stack 2 shall be controlled by the use of low sulfur coal and dry sorbent injection (Sodium sesquacarbonate or equivalent). An alternate dry sorbent may be used for SO<sub>2</sub> emission controls after it has been demonstrated that the alternate dry sorbent will reduce SO<sub>2</sub> emissions and acid gas

emissions (HCl and HF) at an emission rate equivalent to or greater than those produced by sodium sesquacarbonate and that meets the emissions limits in this permit. The dry sorbent injection system shall be provided with adequate access for inspection. Dry sorbent (Sodium sesquacarbonate or equivalent) shall be injected anytime a boiler is operating on coal.

(9 VAC 5-80-850)

6. **Particulate Matter (PM) Emission Controls** – Particulate emissions from Stack 1 and Stack 2 shall each be controlled by a hot side electrostatic precipitator followed in series by cold side electrostatic precipitator designated as HSEP1, HSEP2, HSEP3, HSEP4, and HSEP5 and CSEP1, CSEP2, CSEP3, CSEP4, and CSEP5 respectively. Each electrostatic precipitators shall be provided with adequate access for inspection and shall be in operation when the connected boiler is operating.  
(9 VAC 5-80-850)
7. **Particulate Matter (PM) Emission Controls** – Particulate emissions from the two (2) fly ash silos shall be controlled by baghouse fabric filters and by routing the baghouse fabric filter exhausts to the boiler C1 hot side electrostatic precipitator. The baghouse fabric filters shall be provided with adequate access for inspection and shall be in operation when the fly ash silos are being utilized (filling and unloading).  
(9 VAC 5-80-850)
8. **Particulate Matter (PM) Emission Controls** – Particulate emissions from the bottom ash silo shall be controlled by a baghouse fabric filter. The baghouse fabric filter shall be provided with adequate access for inspection and shall be in operation when the bottom ash silo is being utilized (during filling and unloading).  
(9 VAC 5-80-850)
9. **Particulate Matter (PM) Emission Controls** – Particulate emissions from fly ash and bottom ash transfer from the ash silos to trucks shall be controlled by partial enclosure and wet suppression within the loading chute and water fogging within the enclosure. The partial enclosure system shall be provided with adequate access for inspection and shall be utilized whenever fly ash and bottom ash loading from the silos to trucks is occurring.  
(9 VAC 5-80-850)
10. **Particulate Matter (PM) Emission Controls** – Particulate emissions from the coal pile (via wind erosion) shall be controlled by the installation of a wind screen and use of a surfactant during loading of the coal pile. Particulate emissions from the coal stack-out conveyor system shall be controlled by the use of an enclosed conveyor and the installation of a telescopic chute. Particulate emissions from coal railcar dumping shall be controlled by partial enclosure with heavy duty curtains and by the use of water fogging spray header. All controls shall be functional and in operation whenever coal pile and/or railcar dumping activities are in operation.  
(9 VAC 5-80-850)

11. **Particulate Matter (PM) Emission Controls** – Particulate emissions from dry sorbent (Sodium sesquacarbonate or equivalent) handling shall be controlled by use of a pneumatic uploading system and total enclosure.

(9 VAC 5-80-850)

12. **Electrostatic Precipitator (ESP) Control Efficiency** - The electrostatic precipitators (HSEP1 + CSEP1, HSEP2 + CSEP2, HSEP3 + CSEP3, HSEP4 + CSEP4, and HSEP5 + CSEP5) shall achieve an overall control efficiency for all PM that demonstrates compliance with the emission limitations in this permit and shall be demonstrated as required in conditions 33 and 35. Continued control effectiveness shall be determined using daily readings of secondary voltage and current. These reading shall be compared to those readings taken during the compliance demonstration stack test to demonstrate continued control efficiency.

(9 VAC 5-80-850)

13. **Fugitive Dust and Fugitive Emission Controls** – Fugitive emission controls shall include but are not limited to the following, or equivalent, as approved by DEQ:

- a. Use of water or chemicals for control of dust in the demolition of existing buildings or structures, construction operations, grading of roads, or clearing of land.
- b. Application of asphalt, water, or suitable chemicals on dirt roads, materials stockpiles, and other surfaces which may create airborne dust; the paving of roadways and the maintaining of the roadways in a clean condition.
- c. Open equipment for conveying or transporting materials likely to create objectionable air pollution when airborne shall be covered, or treated in an equally effective manner at all times when in motion.
- d. Prompt removal of spilled or tracked dirt or other materials from paved streets and of dried sediments resulting from soil erosion.
- e. Reasonable precautions shall be taken to prevent deposition of dirt on public roads and subsequent dust emissions. Trucks leaving the site shall have clean wheels achieved by use of a wheel washer or equivalent.

(9 VAC 5-40-90 and 9 VAC 5-80-850)

14. **Monitoring - Continuous Opacity Monitoring Systems (COMS)** - Continuous Opacity Monitoring Systems meeting the design specifications of 40 CFR Part 60, Appendix B shall be installed to measure and record the opacity of emissions from Stack 1 and Stack 2. Except where otherwise indicated in this permit, the COMS shall be installed, calibrated, maintained and operated in accordance with the requirements of 40 CFR 60.13 and Appendix B or DEQ approved procedures which are equivalent to the requirements of 40 CFR 60.13 and Appendix B. Data shall be reduced to six-minute averages. The COMS may be used to satisfy the visible emission evaluation requirement in lieu of 40 CFR, Part 60, Appendix A, Method 9. In the event that the

COMS is used in lieu of a 40 CFR, Part 60, Appendix A, Method 9 evaluation, the reported data shall include averages of all six-minute continuous periods within the reported period and within the duration of any mass emission performance tests being conducted. It is the responsibility of the permittee to demonstrate that the monitoring system has met the requirements of the applicable performance specification 40 CFR Part 60 Appendix B, that the monitoring system has been properly maintained and operated, and that the resulting data has not been altered in any way. In the event that the COMS data indicates compliance for a period during which Method 9 data indicates non-compliance, the Method 9 data may be used to determine compliance with the visible emission limit.

(9 VAC 5-80-890, 9 VAC 5-40-40, 9 VAC 5-50-20 and § 10.1-1307.3.B)

15. **Monitoring - Continuous Emission Monitoring Systems (CEMS)** - CEMS meeting the design specifications of 40 CFR Part 60, Appendix B and 40 CFR Part 75 shall be installed to measure and record CO, SO<sub>2</sub>, and NO<sub>x</sub> (as ppmv corrected to 7% O<sub>2</sub> or 12% CO<sub>2</sub>) CO, volumetric flow rate, and CO<sub>2</sub> or O<sub>2</sub> and PM from Stack 1 and Stack 2. The requirement to install and operate a PM CEMS is deferred until such time that all performance specifications and operations requirements applicable to PM CEMS have been promulgated by EPA, become effective and DEQ has notified the permittee in writing of a deadline for installing the PM CEMS. The permittee shall inform the Air Compliance Manager of the Northern Regional Office (NRO) as to which diluent will be used to normalize the CO, SO<sub>2</sub>, and NO<sub>x</sub>. Before changing the diluent to be used for normalization, the permittee shall justify in writing to the Air Compliance Manager of the NRO the reasons for the change in diluent. Except where otherwise indicated in this permit, the CEMS shall be installed, calibrated, maintained, audited and operated in accordance with the requirements of 40 CFR 60.13 and Appendices B and/or F or DEQ approved procedures which are equivalent to the requirements of 40 CFR 60.13 and Appendices B and F. CEMS data shall be sent to a data acquisition and handling systems (DAHS) to be reduced to pounds per million Btu, one hour averages, 3 hour block averages, 24 hour rolling averages, 30 day rolling averages, and 12-month rolling averages. The span values for SO<sub>2</sub> and NO<sub>x</sub> shall comply with the requirements of 40 CFR Parts 60 and/or 75. The span values for CO shall comply with the requirements of 40 CFR Part 60. The permittee shall utilize monthly recorded CEMS data to calculate annual SO<sub>2</sub>, and NO<sub>x</sub>, emissions (in tons per year) monthly as the sum of each consecutive 12-month period. Calculations shall be maintained on-site for the most recent 5-year period and shall demonstrate compliance with the emission limitations set forth in Conditions 23 through 28.

(9 VAC 5-80-890 and 9 VAC 5-80-850)

16. **Monitoring** – The permittee shall calculate monthly the emissions of PM, PM<sub>10</sub>, PM<sub>2.5</sub>, VOC, HCl, and HF from Stack 1 and Stack 2. The permittee shall calculate monthly emissions utilizing monthly boiler heat input data or monthly fuel throughput, control equipment efficiency as appropriate, and an appropriate F-factor or AP-42 emission factors in order to demonstrate compliance with the emission limitations set forth in Conditions 23 through 28. Calculated emissions shall take into account any emissions associated with startup and shutdown of the boilers. Startup and shutdown emissions shall be identified as such in any emissions calculations.

(9 VAC 5-80-890 and 9 VAC 5-80-850)

17. **Monitoring Devices** - Each fabric filter baghouse shall be equipped with a device to continuously measure and record pressure drop across the filter. The device shall be installed in an accessible location and shall be maintained by the permittee such that it is in proper working order at all times. Each monitoring device shall be installed, maintained, calibrated and operated in accordance with approved procedures which shall include, as a minimum, the manufacturer's written requirements or recommendations. Each monitoring device shall be provided with adequate access for inspection and shall be in operation when the silos are operating.  
(9 VAC 5-80-890 and 9 VAC 5-80-850)
18. **Monitoring Devices - ESP** – A condition assessment shall be conducted on the electrostatic precipitators daily by the permittee in order to determine whether the equipment is in proper operating condition. The details of the condition assessment shall be arranged with the Air Compliance Manager of the NRO. The permittee shall maintain a record of each assessment on-site or in a data base accessible from the PRGS for the most recent 5-year period. Records shall include the date and the time of the assessment, and any findings or corrective actions taken. (9 VAC 5-80-890 and 9 VAC 5-80-850)
19. **Monitoring Device Observation**-For the purpose of this permit normal business hours shall be considered to be from 8:00 AM to 5:00 PM Monday through Friday. Nothing contained here in shall make an inspection time unreasonable during an emergency.
- a. To ensure good performance, each monitoring device used to continuously measure pressure drop across the fabric filters shall be record monitored data on a continuous basis within the Control Room of the PRGS.
  - b. At least once per daylight shift, an observation of the presence of visible emissions from each fabric filter baghouse shall be made.
  - c. If visible emissions are observed and are greater than 10%, the permittee shall take immediate corrective action such that the fabric filter baghouses operate with no visible emissions.
  - d. In the event that visible emissions are observed greater than 10% from the bottom ash silo, a visible emission evaluation (VEE) in accordance with 40 CFR 60, Appendix A, Method 9, shall be performed to assure visible emissions from the fabric filter baghouse do not exceed 10% opacity.
    - i. The VEE shall be conducted for a minimum of six minutes.
    - ii. If any two consecutive 15 second observations exceed 10% opacity, the VEE shall be conducted for a total of sixty minutes.
    - iii. If compliance is not demonstrated by the one hour VEE, immediate corrective action shall be taken such that the fabric filter baghouse resume operation with visible emissions of 10% or less.

- e. The permittee shall maintain an observation log on-site or in a data base accessible from the PRGS during normal business hours for the most recent 5-year period to demonstrate compliance. The log shall include the date and the time of the observations, whether or not there were any visible emissions, any VEE recordings, and any necessary corrective action.
- f. The continuously recorded measurements of the pressure drop shall be maintained on-site or in a data base accessible from the PRGS during normal business hours for the most recent 5-year period and shall be made available for inspection.

(9 VAC 5-80-890 and 9 VAC 5-80-850)

### **OPERATING LIMITATIONS**

20. **Fuel** - The approved fuels for boilers C1, C2, C3, C4 and C5 are bituminous coal and distillate oil. A change in the fuel may require a permit to modify and operate.

(9 VAC 5-80-850)

21. **Fuel** - The coal and distillate oil shall meet the specifications below:

**COAL:**

Minimum heat content: 8,500 Btu/lb HHV  
as determined by ASTM D2015, D3286, or a DEQ-approved equivalent method.

The sulfur content on a per shipment basis shall be between 0.65% and 1.2% and the annual average sulfur content shall not exceed 1.0% as determined by ASTM D3177, D4239, or a DEQ-approved equivalent method.

Maximum ash content per shipment: 11.0%  
as determined by ASTM D3174, or a DEQ-approved equivalent method.

DISTILLATE OIL which meets the ASTM D396 specification for numbers 1 or 2 fuel oil:

Maximum sulfur content per shipment: 0.5%

(9 VAC 5-80-850)

22. **Fuel Certification** - The permittee shall obtain a certification from the fuel supplier with each shipment of coal and distillate oil. Each fuel supplier certification shall include the following:

- a. The name of the fuel supplier or independent third party laboratory;
- b. The date on which the coal was shipped or distillate oil was received;
- c. The quantity of coal or distillate oil delivered in the shipment;

- d. A statement that the distillate oil complies with the American Society for Testing and Materials specifications (ASTM D396) for numbers 1 and 2 fuel oil;
- e. The sulfur content of the coal or distillate oil;
- f. Documentation of sampling of the coal or distillate oil indicating the location of the fuel when the sample was taken and;
- g. The methods used to determine the sulfur and ash contents of the coal;

Fuel sampling and analysis using applicable ASTM standards, independent of that used for certification, as may be periodically required or conducted by DEQ may be used to determine compliance with the fuel specifications stipulated in Condition 21. The permittee may propose an alternate method of demonstrating compliance with the fuel sulfur requirements of this section. Exceedance of these specifications may be considered credible evidence of the exceedance of emission limits.

(9 VAC 5-80-890)

**EMISSION LIMITS** – The following emissions limits become effective upon completion of the stack merge project

23. **Process Emission Limits** - Emissions from the operation of the boiler C1 shall not exceed the limits specified below:

Pollutant	lbs/MMBtu	lbs/MMBtu 24 hr block avg	lbs/Hour	lbs/Day 24 hr block avg
Particulate Matter (PM) including condensable PM	0.055 3 hr block avg	0.055	57.92	1,389.96
PM-10 including condensable PM-10	0.055 3 hr block avg	0.055	57.92	1,389.96
PM-2.5 including condensable PM-2.5	0.055 3 hr block avg	0.055	57.92	1,389.96
Sulfur Dioxides (SO <sub>2</sub> )	0.96 3 hr block avg	0.96	1,010.88 3 hr block avg	24,261.12
Oxides of Nitrogen (as NO <sub>2</sub> )	0.32 30 day rolling avg		336.96 30 day rolling avg	
Carbon Monoxide (CO)	680.90 ppmv 3 hr avg		714.93 30 day rolling avg	
Volatile Organic Compounds (VOC)			4.21	
Hydrogen Chloride	0.021		22.11	
Hydrogen Fluoride	0.0076		8.00	

These emissions are derived from the estimated overall emission contribution from operating limits. Exceedance of the operating limits may be considered credible evidence of an exceedance of the emission limits. Compliance with these emission limits may be determined as stated in Conditions 15 and 16. This Condition does not relieve the requirement to comply with the operating scenario limits in Condition 28.  
 (9 VAC 5-80-850)

24. **Process Emission Limits** - Emissions from the operation of the boiler C2 shall not exceed the limits specified below:

Pollutant	lbs/MMBtu	lbs/MMBtu 24 hr block avg	lbs/Hour	lbs/Day 24 hr block avg
Particulate Matter (PM) including condensable PM	0.055 3 hr block avg	0.055	56.60	1,358.28
PM-10 including condensable PM-10	0.055 3 hr block avg	0.055	56.60	1,358.28
PM-2.5 including condensable PM-2.5	0.055 3 hr block avg	0.055	56.60	1,358.28
Sulfur Dioxides (SO <sub>2</sub> )	0.96 3 hr block avg	0.96	987.84 3 hr block avg	23,708.16
Oxides of Nitrogen (as NO <sub>2</sub> )	0.32 30 day rolling avg		329.28 30 day rolling avg	
Carbon Monoxide (CO)	688.60 ppmv 3 hr avg		732.99 30 day rolling avg	
Volatile Organic Compounds (VOC)			4.12	
Hydrogen Chloride	0.021		21.61	
Hydrogen Fluoride	0.0076		7.82	

These emissions are derived from the estimated overall emission contribution from operating limits. Exceedance of the operating limits may be considered credible evidence of an exceedance of the emission limits. Compliance with these emission limits may be determined as stated in Conditions 15 and 16. This Condition does not relieve the requirement to comply with the operating scenario limits in Condition 28.  
 (9 VAC 5-80-850)

25. **Process Emission Limits** - Emissions from the operation of the boiler C3 shall not exceed the limits specified below:

<b>Pollutant</b>	<b>lbs/MMBtu</b>	<b>lbs/MM Btu 24 hr block avg</b>	<b>lbs/Hour</b>	<b>lbs/Day 24 hr block avg</b>
Particulate Matter (PM) including condensable PM	0.055 3 hr block avg	0.055	55.99	1,343.76
PM-10 including condensable PM-10	0.055 3 hr block avg	0.055	55.99	1,343.76
PM-2.5 including condensable PM-2.5	0.055 3 hr block avg	0.055	55.99	1,343.76
Sulfur Dioxides (SO <sub>2</sub> )	0.80 3 hr block avg	0.80	814.40 3 hr block avg	19,545.60
Oxides of Nitrogen (as NO <sub>2</sub> )	0.32 30 day rolling avg		325.76 30 day rolling avg	
Carbon Monoxide (CO)	1,040.00 ppmv 3 hr avg		1,033.67 30 day rolling avg	
Volatile Organic Compounds (VOC)			4.07	
Hydrogen Chloride	0.021		21.38	
Hydrogen Fluoride	0.0076		7.74	

These emissions are derived from the estimated overall emission contribution from operating limits. Exceedance of the operating limits may be considered credible evidence of an exceedance of the emission limits. Compliance with these emission limits may be determined as stated in Conditions 15 and 16. This Condition does not relieve the requirement to comply with the operating scenario limits in Condition 28.  
 (9 VAC 5-80-850)

26. **Process Emission Limits** - Emissions from the operation of the boiler C4 shall not exceed the limits specified below:

Pollutant	lbs/MMBtu	lbs/MMBtu 24 hr block avg	lbs/Hour	lbs/Day 24 hr block avg
Particulate Matter (PM) including condensable PM	0.055 3 hr block avg	0.055	59.79	1,434.84
PM-10 including condensable PM-10	0.055 3 hr block avg	0.055	59.79	1,434.84
PM-2.5 including condensable PM-2.5	0.055 3 hr block avg	0.055	59.79	1,434.84
Sulfur Dioxides (SO <sub>2</sub> )	0.80 3 hr block avg	0.80	869.60 3 hr block avg	20,870.40
Oxides of Nitrogen (as NO <sub>2</sub> )	0.32 30 day rolling avg		347.84 30 day rolling avg	
Carbon Monoxide (CO)	1040.00 ppmv 3 hr avg		994.79 30 day rolling avg	
Volatile Organic Compounds (VOC)			4.35	
Hydrogen Chloride	0.021		22.83	
Hydrogen Fluoride	0.0076		8.26	

These emissions are derived from the estimated overall emission contribution from operating limits. Exceedance of the operating limits may be considered credible evidence of an exceedance of the emission limits. Compliance with these emission limits may be determined as stated in Conditions 15 and 16. This Condition does not relieve the requirement to comply with the operating scenario limits in Condition 28.  
 (9 VAC 5-80-850)

27. **Process Emission Limits** - Emissions from the operation of the boiler C5 shall not exceed the limits specified below:

<b>Pollutant</b>	<b>lbs/MMBtu</b>	<b>lbs/MMBtu 24 hr block avg</b>	<b>lbs/Hour</b>	<b>lbs/Day 24 hr block avg</b>
Particulate Matter (PM) including condensable PM	0.055 3 hr block avg	0.055	60.89	1,461.24
PM-10 including condensable PM-10	0.055 3 hr block avg	0.055	60.89	1,461.24
PM-2.5 including condensable PM-2.5	0.055 3 hr block avg	0.055	60.89	1,461.24
Sulfur Dioxides (SO <sub>2</sub> )	0.80 3 hr block avg	0.80	885.60 3 hr block avg	21,254.40
Oxides of Nitrogen (as NO <sub>2</sub> )	0.32 30 day rolling avg		354.24 30 day rolling avg	
Carbon Monoxide (CO)	1040.00 ppmv 3 hr avg		968.75 30 day rolling avg	
Volatile Organic Compounds (VOC)			4.43	
Hydrogen Chloride	0.021		23.25	
Hydrogen Fluoride	0.0076		8.41	

These emissions are derived from the estimated overall emission contribution from operating limits. Exceedance of the operating limits may be considered credible evidence of an exceedance of the emission limits. Compliance with these emission limits may be determined as stated in Conditions 15 and 16. This Condition does not relieve the requirement to comply with the operating scenario limits in Condition 28.  
(9 VAC 5-80-850)

28. **Process Emission Limits – Multiple Operating Scenarios** – Emissions for the operation of combination unit operations shall not exceed the limits specified below.

Operating Scenario	SO <sub>2</sub> 3 hr block average Lbs/MMBtu	SO <sub>2</sub> 3 hr block average Lbs/Hr	SO <sub>2</sub> 24 hr block average Lbs/MM Btu	SO <sub>2</sub> 24 hr average Lbs/Day
1 cycling	0.85	895.05	0.67	16,932.24
1 base	0.47	510.89	0.35	9,130.80
2 cycling	0.96	1,998.72	0.96	47,969.28
2 base	0.54	1,136.70	0.47	23,744.40
3 base	0.61	1,959.32	0.58	44,711.04
1 cycling/1 base	0.55	1,177.00	0.53	27,220.80
1 cycling/2 base	0.72	2,273.76	0.71	53,812.32
1 cycling/3 base	0.39	1,663.35	0.36	36,849.60
2 cycling/1 base	0.80	2,535.20	0.80	25,311.17
2 cycling/ 2 base	0.43	1,838.68	0.43	44,128.32
2 cycling/ 3 base	0.39	2,064.66	0.39	49,551.84

Operating Scenario	PM 1 hr average Lb/MMBtu	PM 1 hr average Lb/Hr	PM 24 hr average Lb/MMBtu	PM 24 hr average Lb/Day
Max value for any case	0.055	291.17	0.055	6988.08

Operating Scenario	PM <sub>10</sub> 1 hr average Lb/MMBtu	PM <sub>10</sub> 1 hr average Lb/Hr	PM <sub>10</sub> 24 hr average Lb/MMBtu	PM <sub>10</sub> 24 hr average Lb/Day
Max value for any case	0.055	291.17	0.055	6988.08

Operating Scenario	PM <sub>2.5</sub> 1 hr average Lb/MMBtu	PM <sub>2.5</sub> 1 hr average Lb/Hr	PM <sub>2.5</sub> 24 hr average Lb/MMBtu	PM <sub>2.5</sub> 24 hr average Lb/Day
Max value for any case	0.055	291.17	0.055	6988.08

Operating Scenario	Nox 1 hr average Lb/MMBtu (30-Day rolling avg.)	Nox 1 hr average Lb/Hr	Nox 24 hr average Lb/MMBtu	Nox 24 hr average Lb/Day
Max value for any case	0.32	1,039.04		

Operating Scenario	CO 1 hr average Lb/MMBtu	CO1 hr average Lb/Hr	CO 24 hr average Lb/MMBtu	CO 24 hr average Lb/Day
Max value for any case		4,445.13		

Operating Scenario	HCl 1 hr average Lb/MMBtu	HCl 1 hr average Lb/Hr	HCl 24 hr average Lb/MMBtu	HCl 24 hr average Lb/Day
Max value for any case	0.021	111.17		

Operating Scenario	HF 1 hr average Lb/MMBtu	HF1 hr average Lb/Hr	HF 24 hr average Lb/MMBtu	HF24 hr average Lb/Day
Max value for any case	0.0076	40.23		

These tables were developed using the worst case scenario of operating combination of units which would exhibit the worse case emissions.

These emissions are derived from the estimated overall emission contribution from operating limits. Exceedance of the operating limits may be considered credible evidence of an exceedance of the emission limits. Compliance with these emission limits may be determined as stated in Conditions 15 and 16.

(9 VAC 5-80-850)

29. **Emission Calculations** – The permittee shall calculate emissions of PM, PM-10, PM-2.5, HCl, HF, and VOC in tons per year from boilers C1, C2, C3, C4 and C5. The permittee shall calculate annual emissions monthly as the sum of each consecutive 12-month period utilizing monthly boiler heat input data or monthly fuel throughput, control equipment efficiency, and appropriate F-factors or AP-42 emission factors in order to demonstrate compliance with the emission limitations set forth in Conditions 28. Calculated emissions shall take into account any emissions associated with startup and shutdown of the boilers. Startup and shutdown emissions shall be identified as such in any emissions calculations.

(9 VAC 5-80-890 and 9 VAC 5-80-850)

30. **Facility wide Emission Limits** – Total emissions from boilers C1, C2, C3, C4, and C5 combined shall not exceed the limits specified below:

	<b><u>Tons/Year</u></b>
Particulate Matter (PM) including condensable PM	562
PM-10 including condensable PM-10	377
PM-2.5 including condensable PM-2.5	163
Sulfur Dioxides (SO <sub>2</sub> )	3813
Oxides of Nitrogen (as NO <sub>2</sub> )	3700
Carbon Monoxide (CO)	215
Volatile Organic Compounds (VOC)	26
Hydrogen Chloride (HCl)	100
Hydrogen Fluoride (HF)	36.22

These emissions are derived from the estimated overall emission contribution from operating limits. Exceedance of the operating limits may be considered credible evidence of the exceedance of emission limits. Compliance with these emission limits may be determined as stated in Conditions 15 and 16.

(9 VAC 5-80-850)

31. **Visible Emission Limit** - Visible emissions from Stack 1 and Stack 2 shall not exceed 20 % opacity except during one six-minute period in any one hour in which visible emissions shall not exceed 30 percent opacity as determined by the EPA Method 9 (reference 40 CFR 60, Appendix A). The COMS may be used to satisfy the visible emission evaluation requirement in lieu of 40 CFR, Part 60, Appendix A, Method 9. In the event that the COMS is used in lieu of a 40 CFR, Part 60 Appendix A Method 9 evaluation, the reported data shall include averages of all six-minute continuous periods within the reported period and within the duration of any mass emission performance tests being conducted. It is the responsibility of the permittee to demonstrate that the monitoring system has met the requirements of the applicable performance specification defined in 40 CFR Part 60, Appendix B, that the monitoring system has been properly maintained and operated, and that the resulting data has not been altered in any way. In the event that the COMS data indicates compliance for a period during which Method 9 data indicates non-compliance, the Method 9 data may be used to determine compliance with the visible emission limit. This condition applies at all times except during startup, shutdown, and malfunction.

(9 VAC 5-80-850)

32. **Visible Emission Limit – Bottom Ash Silo** - Visible emissions from the bottom ash silo shall not exceed 10% opacity as determined by 40 CFR Part 60, Appendix A, Method 9.

(9 VAC 5-80-850)

## **COMPLIANCE DETERMINATION**

33. **Stack Test** - Initial performance tests shall be conducted for NO<sub>x</sub>, SO<sub>2</sub>, PM, PM<sub>10</sub>, PM<sub>2.5</sub>, CO, HCl, HF from Stack 1 and Stack 2 using appropriate and approved EPA reference methods to determine compliance with the emission standards and control efficiency requirements contained in Conditions 12 and 23 through 27. Additionally, the hot and cold side ESP effectiveness ~~efficiencies~~ shall be determined during this performance testing and the secondary volts and current shall be recorded as the base line for monitoring the ESP operation. If the permittee determines that it is in the best interest of good air pollution control practices to utilize a lower sulfur coal than that required in condition 21, a test may be conducted to demonstrate the rate of dry sorbent injection necessary to provide the appropriate level of HCl and HF reduction to ensure compliance with the Significant Ambient Air Concentration values. The tests shall be performed, and reported and demonstrate compliance within 180 days after completion of the stack merge project. Tests shall be conducted and reported and data reduced as set forth in 9 VAC 5-50-30 and 9 VAC 5-60-30. The details of the tests are to be arranged with the Air Compliance Manager, NRO. The permittee shall submit two copies of a test protocol at least thirty days prior to testing to the Air Compliance Manager, NRO of the DEQ. Two copies of the test results shall be submitted to the Air Compliance Manager, NRO of the DEQ within sixty days after test completion and shall conform to the test report format enclosed with this permit.  
(9 VAC 5-40-890)
34. **Visible Emissions Evaluation** - Concurrently with the initial performance tests, and during the Method 5 compliance demonstration test, a Visible Emission Evaluations (VEE) in accordance with 40 CFR Part 60, Appendix A, Method 9, shall be conducted by the permittee on each stack, C1, C2, C3, C4 and C5. Each test shall consist of 30 sets of 24 consecutive observations (at 15 second intervals) to yield a six minute average. The details of the tests are to be arranged with the Air Compliance Manager, NRO of the DEQ. The permittee shall submit a test protocol at least thirty days prior to testing. The evaluation shall be performed, during compliance demonstration testing required in Condition 33 above. Should conditions prevent concurrent opacity observations, the Air Compliance Manager, NRO of the DEQ shall be notified in writing, within seven days, and visible emissions testing shall be rescheduled within thirty days. Rescheduled testing shall be conducted under the same conditions (as possible) as the initial performance tests. The continuous opacity monitoring system may be used to satisfy the visible emission evaluation requirement in lieu of 40 CFR, Part 60, Appendix A, Method 9. In the event that the COMS is used in lieu of a 40 CFR, Part 60, Appendix A, Method 9 evaluation, the reported data shall include averages of all six minute continuous periods within the reported period and within the duration of any mass emission performance tests being conducted. One copy of the test result shall be submitted to the Air Compliance Manager, NRO of the DEQ within sixty days after test completion and shall conform to the test report format enclosed with this permit.  
(9 VAC 5-40-30)
35. **CEMS/COMS Performance Evaluations** - Performance evaluations of the continuous monitoring systems shall be conducted in accordance with 40 CFR Part 60, Appendix B, and shall take place during the performance tests required in Condition 33. Two copies of the performance evaluations report shall be submitted to the Air Compliance Manager, NRO of the DEQ within forty-five days

of the evaluation. The continuous monitoring systems shall be installed and operational prior to conducting initial performance tests. Verification of operational status shall, as a minimum, include completion of the manufacturer's written requirements or recommendations for installation, operation and calibration of the device. A thirty day notification, prior to the demonstration of continuous monitoring system's performance, and subsequent notifications shall be submitted to the Air Compliance Manager, NRO of the DEQ.

(9 VAC 5-40-40)

36. **CEMS/COMS Quality Control Program** - A CEMS/COMS quality control program which meets the requirements of 40 CFR 60.13 and Appendix B and/or F and 40 CFR Part 75 shall be implemented for all continuous monitoring systems except that Relative Accuracy Test Audits (RATA) may be required less frequently if approved by DEQ.

(9 VAC 5-40-40)

### **CONTINUED COMPLIANCE**

#### **37. Annual Compliance Testing**

- a. The permittee shall demonstrate compliance on an annual basis utilizing appropriate 40 CFR Part 60, Appendix A reference test methods in the testing of PM-10, PM-2.5, HCl, and HF
- b. The hot and cold side ESP particulate removal effectiveness shall be determined during this performance testing and the secondary volts and current shall be recorded as the base line for continued monitoring of the ESP operation.
- c. These tests shall be performed annually on two base load units and one cycling unit. Testing performed the next year shall be on at least two units that were not tested the previous year.
- d. These tests shall be arranged with the Air Compliance Manager, NRO.
- e. Tests shall be conducted and reported and data reduced as set forth in 9 VAC 5-40-30 and 9 VAC 5-60-30.
- f. The permittee shall submit a test protocol at least 30 days prior to testing.
- g. One paper copy of the test results and two electronic copies, on removable media, of the test results shall be submitted to the Air Compliance Manager, NRO within sixty days after test completion and shall conform to the test report format enclosed with this permit.

(9 VAC 5-40-30 and 9 VAC 5-60-30)

### **RECORDS**

38. **On Site Records** - The permittee shall maintain records of emission data and operating parameters as necessary to demonstrate compliance with this permit. The content and format of such records

shall be arranged with the Air Compliance Manager NRO. These records shall include, but are not limited to:

- a. All fuel supplier certifications.
- b. Annual emissions calculations for PM, PM-10, PM-2.5, VOC, HCl, and HF from the boilers using calculation methods approved by the Air Compliance Manager NRO to verify compliance with the ton/yr and pound per year emission limitations in Condition 30.
- c. CEMS and COMS maintenance and calibration records including but not limited to continuous monitoring system calibrations and calibration checks, percent operating time, and excess emissions.
- d. All recorded CEMS and COMS data necessary to demonstrate compliance with the requirements of Conditions 15 and 16 and with the emission limitations outlined in Conditions 23 through 28.
- e. Any required visible emissions evaluations (VEEs) and visible emission evaluation logbook data.
- f. Operation and control device monitoring records for the electrostatic precipitators and fabric filters as required in Conditions 12 and 17.
- g. All records of compliance demonstration, CEM certifications and CEM Relative Accuracy Audit Tests.
- h. Scheduled and unscheduled maintenance and operator training.
- i. The permittee shall maintain a record of the operating scenario selected for daily operation.
- j. The annual average sulfur content of the coal shall be calculated monthly as the average of each consecutive twelve month period.
- k. Daily records of the operating scenarios under which the facility operated for each calendar day in a format approved by the Air Compliance Manager NRO.

These records shall be available for inspection by the DEQ and shall be current for the most recent five years.

(9 VAC 5-40-890)

39. **Quarterly Reports for Continuous Monitoring Systems** - The permittee shall furnish written reports to the Air Compliance Manager NRO of excess emissions from any process monitored by a continuous monitoring system (COMS/CEMS) on a quarterly basis, postmarked no later than the

30th day following the end of the calendar quarter. These reports shall include, but are not limited to the following information:

- a. The magnitude of excess emissions, any conversion factors used in the calculation of excess emissions, and the date and time of commencement and completion of each period of excess emissions;
- b. Specific identification of each period of excess emissions that occurs during startups, shutdowns, and malfunctions of the process, the nature and cause of the malfunction (if known), the corrective action taken or preventative measures adopted;
- c. The date and time identifying each period during which the continuous monitoring system was inoperative except for zero and span checks and the nature of the system repairs or adjustments; and
- d. When no excess emissions have occurred or the continuous monitoring systems have not been inoperative, repaired or adjusted, such information shall be stated in that report.

(9 VAC 5-40-50)

40. **Semi-Annual Report** - The permittee shall submit reports to the Northern Regional Office, within 30 days after the end of each semi-annual period. The semi-annual periods are defined as January 1<sup>st</sup> through June 30<sup>th</sup> and July 1<sup>st</sup> through December 31<sup>st</sup> of each year. The permittee may submit the reports in electronic format as approved by the Air Compliance Manager, NRO within 30 days after the end of each semi-annual period. Each semi-annual report shall include the dates included in the semi-annual period and the following:

- a. With regard to CO, SO<sub>2</sub>, and NO<sub>x</sub> emissions and continuous emissions monitoring:
  - i. Each 30-day average emission rate in lbs/MMBtu;
  - ii. Identification of days for which CO, SO<sub>2</sub>, NO<sub>x</sub>, either O<sub>2</sub>, or CO<sub>2</sub> data have not been obtained by an approved method for at least 75 percent of operating hours, reasons for not obtaining sufficient data and corrective actions taken;
  - iii. Identification of any intervals when emissions data have been excluded from the calculation of average emission rates, justification for excluding data and a description of corrective action taken if data have been excluded for periods other than when oil was not combusted in the unit;
  - iv. Identification of the F-factor used in calculations, method of determination for each type of fuel combusted, and type of fuel combusted;
  - v. Identification of any times when the pollutant concentration exceeded the full span of the continuous emissions monitor;

- vi. Description of any modifications to the continuous emissions monitor that could effect its ability to comply with the performance specifications under 40 CFR 60, Appendices B and/or F; and
- vii. Summary of the results of daily continuous emissions monitor drift tests and semi-annual accuracy assessments as required by 40 CFR 60, Appendix F, Procedure 1.
- b. With regard to visible emissions and opacity monitoring, the permittee shall report all excess opacity and the percentage of operating hours for which opacity monitoring data have not been obtained. If no excess opacity occurred or opacity monitoring data were obtained for all operating hours during the reporting period, the semi-annual report shall contain a statement as such. All semi-annual opacity monitoring reports shall conform to the Opacity Monitoring Report Format enclosed with this permit.

(9 VAC 5-170-160 and 9 VAC 5-40-50)

#### **NOTIFICATIONS**

41. **Notifications** - The permittee shall furnish written notification to the Air Compliance Manager of the NRO of:
- a. The actual date on which the stack merge project is completed within 30 days after such date.
  - b. The anticipated date of continuous monitoring system performance evaluations postmarked not less than 30 days prior to such date.
  - c. The intention to use continuous opacity monitoring system data results to demonstrate compliance with the applicable visible emission limit during a performance test in lieu of Reference Method 9 (reference 40 CFR Part 60, Appendix A), postmarked not less than 30 days prior to the date of the performance test.
  - d. The anticipated date of performance tests of the electric generating facility postmarked at least 30 days prior to such date.

(9 VAC 5-40-50)

#### **GENERAL CONDITIONS**

42. **Right of Entry** - The permittee shall allow authorized local, state, and federal representatives, upon the presentation of credentials:
- a. To enter upon the permittee's premises on which the facility is located or in which any records are required to be kept under the terms and conditions of this permit;

- b. To have access to and copy at reasonable times any records required to be kept under the terms and conditions of this permit or the State Air Pollution Control Board Regulations;
- c. To inspect at reasonable times any facility, equipment, or process subject to the terms and conditions of this permit or the State Air Pollution Control Board Regulations; and
- d. To sample or test at reasonable times.

For purposes of this condition, the time for inspection shall be deemed reasonable during regular business hours or whenever the facility is in operation. Nothing contained herein shall make an inspection time unreasonable during an emergency.

(9 VAC 5-170-130)

43. **Maintenance/Operating Procedures** – At all times, including periods of start-up, shutdown, soot blowing, and malfunction, the permittee shall, to the extent practicable, maintain and operate the affected source, including associated air pollution control equipment, in a manner consistent with good air pollution control practices for minimizing emissions.

The permittee shall take the following measures in order to minimize the duration and frequency of excess emissions, with respect to boilers C1, C2, C3, C4 and C5 and electrostatic precipitators HSEP1, HSEP2, HSEP3, HSEP4, and HSEP5 and CSEP1, CSEP2, CSEP3, CSEP4, and CSEP5 and dry sorbent (Sodium sesquacarbonate or equivalent) injection system:

- a. Develop a maintenance schedule and maintain records of all scheduled and non-scheduled maintenance.
- b. Maintain an inventory of spare parts.
- c. Have available written operating procedures for equipment. These procedures shall be based on the manufacturer's recommendations, at a minimum.
- d. Train operators in the proper operation of all such equipment and familiarize the operators with the written operating procedures, prior to their first operation of such equipment. The permittee shall maintain records of the training provided including the names of trainees, the date of training and the nature of the training.

Records of maintenance and training shall be maintained on site for a period of five years and shall be made available to DEQ personnel upon request.

(9 VAC 5-50-20 E)

44. **Record of Malfunctions** – The permittee shall maintain records of the occurrence and duration of any bypass, malfunction, shutdown or failure of the facility or its associated air pollution control equipment that results in excess emissions for more than one hour. Records shall include the date, time, duration, description (emission unit, pollutant affected, cause), corrective action, preventive measures taken and name of person generating the record.

(9VAC 5-20-180 J)

45. **Notification for Facility or Control Equipment Malfunction** - The permittee shall furnish notification to the Air Compliance Manager, NRO of malfunctions of the affected facility or related air pollution control equipment that may cause excess emissions for more than one hour, by facsimile transmission, telephone or telegraph or other electronic means acceptable to the DEQ. Such notification shall be made as soon as practicable but no later than four daytime business hours after the malfunction is discovered. The permittee shall provide a written statement giving all pertinent facts, including the estimated duration of the breakdown, within two weeks of discovery of the malfunction. When the condition causing the failure or malfunction has been corrected and the equipment is again in operation, the permittee shall notify the Air Compliance Manager, NRO.  
(9 VAC 5-20-180 C)
46. **Exceedance of Ambient Air Quality Standard** - Regardless of any other provision of this section, the owner of any facility subject to the Regulations for the Control and Abatement of Air Pollution shall, upon request of the board, reduce the level of operation at the facility if the board determines that this is necessary to prevent a violation of any primary ambient air quality standard. Under worst case conditions, the board may order that the owner shut down the facility, if there is no other method of operation to avoid a violation of the primary ambient air quality standard. The board reserves the right to prescribe the method of determining if a facility will cause such a violation. In such cases, the facility shall not be returned to operation until it and the associated air pollution control equipment are able to operate without violation of any primary ambient air quality standard.  
(9 VAC 5-20-180 I)
47. **Change of Ownership** - In the case of a transfer of ownership of a stationary source, the new owner shall abide by any current permit issued to the previous owner. The new owner shall notify the NRO of the change of ownership within 30 days of the transfer.  
(9 VAC 5-80-940)
48. **Permit Copy** - The permittee shall keep a copy of this permit on the premises of the facility to which it applies.  
(9 VAC 5-80-1180)

Mirant – Potomac River Generating Station  
 Registration Number: 70228  
 DRAFT: October 5, 2007  
 Attachment A

Stack Configuration for Boilers 1 and 2  
 (Boilers 3, 4, and 5 always exhaust to Merged Stack #4)

Stack Exhaust for Units 1 and 2		Units On
Exhausting through Merged Stack #1	Exhausting through Merged Stack #4	
Units 1 and 2		1, 2, 3, 4, 5
Unit 1		1, 3, 4, 5
Unit 2		2, 3, 4, 5
Unit 1	Unit 2	1, 2, 3, 4
Unit 1	Unit 2	1, 2, 3, 5
Unit 1	Unit 2	1, 2, 4, 5
	Unit 1	1, 3, 4
	Unit 2	2, 3, 4
	Unit 1	1, 3, 5
	Unit 2	2, 3, 5
	Unit 1	1, 4, 5
	Unit 2	2, 4, 5
	Units 1 and 2	1, 2, 3
	Units 1 and 2	1, 2, 4
	Units 1 and 2	1, 2, 5
	Unit 1	1, 3

Stack Exhaust for Units 1 and 2		Units On
Exhausting through Merged Stack #1	Exhausting through Merged Stack #4	
	Unit 1	1, 4
	Unit 1	1, 5
	Unit 2	2, 3
	Unit 2	2, 4
	Unit 2	2, 5
Units 1 and 2		1, 2
Unit 1		1
Unit 2		2